



Ethnomedicinal Study of the Use of Zingiberaceae by the Mentawai People in Siberut, West Sumatra, Indonesia

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ABSTRACT

The Mentawai archipelago is situated to the west of mainland Sumatra and is part of the West Sumatra province. The Mentawai people are indigenous to this archipelago and are well known for their traditional healing practices performed by their Sikerei healers. Only a few studies on the traditional plant medicines of the Mentawai people have been published, which mostly suggest that Zingiberaceae is one of the most widely used families. This study examines the indigenous knowledge of Zingiberaceae by the Mentawai people living in Siberut. Field surveys were undertaken at four locations in the island where the Sikerei healers were interviewed directly to obtain information about medicinal treatments using plants from the Zingiberaceae family. Voucher specimens were collected, dried and deposited at the Herbarium of Andalas University (ANDA), Padang, West Sumatra. The study suggests that at least 32 Zingiberaceae species are used in the Mentawai's traditional medicines. The floristic aspects, the plant part used, and the type of disease treated are discussed.

INTRODUCTION

Siberut is the largest island in the Mentawai Islands district. The Mentawai people are believed to have occupied Siberut for over 3000 years (Whittaker, 2006). The Mentawai people are renowned for their use of plant medicines by traditional healers (called Sikerei) to treat various kinds of diseases and health issues. The practice is unique, particularly since Mentawai medicines rely on Siberut's unique biodiversity. The transmission of Mentawai plant knowledge and healing practices are usually passed through oral traditions from Sikerei to younger Sikerei. Thus, the loss of one Sikerei is like losing a library. Recent observation suggests that the younger generations do not seem interested in learning about the uses of Mentawai medicinal plants. Most of the Sikerei are over 50 years of age, and most have no replacement from the younger generations (RISTOJA, 2012).

Scientific information on Zingiberaceae for native Sumatran species is not easy to find, with only a few studies on the taxonomy of the Zingiberaceae family available, particularly for the genera *Globba* L., *Amomum* Roxb., and *Hornstedtia* Retz. (Takano and Okada, 2003; Nurainas, 2013; Droop and Newman, 2014). Previous studies conducted in Siberut National Park report 24 wild species related to the Zingiberaceae family (Nurainas and Yunaidi, 2006). However, the medicinal uses of the family have not been specifically studied and there is currently little information available (RISTOJA, 2012; Ave and Sunito, 1990). This article provides a more detailed understanding of the species of Zingiberaceae that are commonly used by the Mentawai people for medicinal and cultural purposes.

RESEARCH METHODOLOGY

Study area

We collected data from four villages in Siberut, Mentawai Islands, West Sumatra, Indonesia, namely: Bojakan in Northern Siberut sub-district, Matotonan and Muntei in Southern Siberut sub-district, and Sirisurak in Central Siberut (Figure 1).

Data collection and species identification

Information on the use of Zingiberaceae as traditional medicines was gathered primarily through unstructured interviews with Sikerei. The species of Zingiberaceae used for traditional medicines were identified through direct observation and through plant collection and later identification at ANDA. All collected plant material was preserved as herbarium specimens, and all flowers were preserved in wet collection using FAA with the following concentration: formalin: acetate acid: ethanol (5:5:90). All preserved specimens are stored at ANDA. Botanical terminology follows standard guidelines (Harirs and Harris, 1994; Smith, 1981); Stearn, 1995; Hickey and King, 2000).

RESULT AND DISCUSSION

Floristic aspects

Thirty-two species from 13 genera of Zingiberaceae that are used for traditional medicines by the Mentawai people on Siberut Island were collected during the study period (Table 1). The dominant species used are from the genera *Etlingera* and *Globba*, consisting of six species per genus.

Most of the Zingiberaceae species used in traditional Mentawai medicines come from Siberut and are harvested from the wild and the forests surrounding the villages. In addition, most of cultivated species are introduced from mainland Sumatra which are commonly used for spices and traditional medicines in other areas in Indonesia, such as *Zingiber officinale* Roscoe (gingers), *Curcuma longa* L. (turmeric), and *Kaempferia galanga* L. (kencur). The results of this study indicated that the species of Zingiberaceae used by the Mentawai people originate more from wild species for traditional medicines, while the people of mainland Sumatra use more cultivated species (RISTOJA, 2012; Hartanto et al. 2014; Kuntorini, 2005).

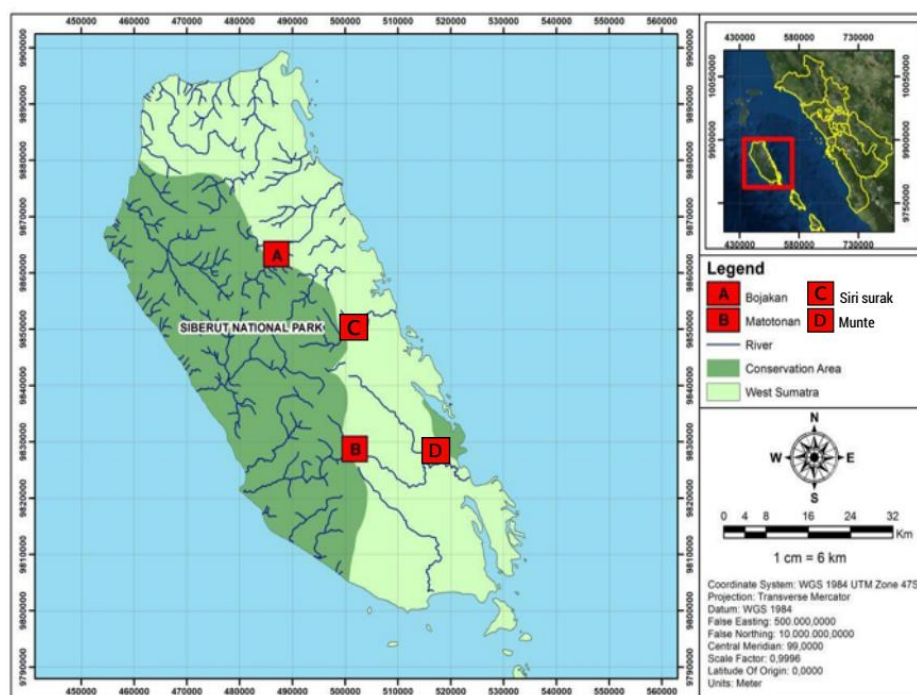


Figure 1. Map of the study localities on the Siberut Island, Kepulauan Mentawai district (see the legend for details). Inset: the map of West Sumatra province highlighting the position of Siberut island.

Table 1. List of species from the family Zingiberaceae used for traditional medicines by the Mentawai tribes on Siberut Island.

No.	Scientific names	Local names	English or Indonesian names	Parts Used	Uses	Wild/Cultivated
1	<i>Alpinia malaccensis</i> (Burm.f.) Roscoe	Pasingin	Malacca galangal	Stem	Childbirth cramps, cuts and wounds, diarrhoea	Wild
2	<i>Amomum mentawaiense</i> A.J.Droop	Gojot leleu	-	Stem	Cough	Wild
3	<i>Boesenbergia angustifolia</i> (Hallier f.) Schltr.	Egleu	Chinese ginger	Leaf, whole plant	Hypertension, headache	Wild
4	<i>Curcuma longa</i> L.	Kiniu	Turmeric	Rhizome, Leaf	Stomach ache	Cultivated
5	<i>C. zanthorrhiza</i> Roxb.	Kiniu-ra'ba'	Temu lawak	Rhizome	diarrhoea, back pain, Childbirth cramps, bruises and sores, dye body.	Cultivated
6	<i>Elettaria longituba</i> (Ridl.) Holttum	Alutuet	-	Flower, Leaf, Stem	Headache, stomach ache, back pain, allergies to insect bites	Wild
7	<i>Etingera coccinea</i> (Blume) S.Sakai & Nagam.	Pelekak	-	Flower	Addition on medicinal herbs	Wild
8	<i>E. elatior</i> (Jack) R.M.Sm.	Totonan	Rose torch lily	Rhizome	Headache, vomiting, eye infections, breast swelling	Wild/Cultivated
9	<i>E. elatior</i> var. <i>alba</i> Todam & C.K.Lim	Gojo	White torch lily	Rhizome	headache, vomiting, eye infections, breast swelling	Wild/Cultivated
10	<i>E. foetens</i> (Blume) R.M.Sm.	Kukuan	-	Stem	Headache	Wild
11	<i>E. pyramidosphaera</i> (K.Schum.) R.M.Sm.	Sumamaik	Black tulip ginger	Rhizome	Internal injured	Wild/Cultivated
12	<i>E. littoralis</i> (J.Koenig) Giseke	Pelekak	-	Flower	Addition on medicinal herbs	Wild
13	<i>Geocharis</i> sp.	Sipubaglao	-	Stem	Boils	Wild
14	<i>Globba flavibracteata</i> A.Takano & H.Okada	Silukkuk	-	Whole plant	Asthma, Cough	Wild
15	<i>G. atrosanguinea</i> Teijsm. & Binn.	Tamalalauk	-	Whole plant	Headache	Wild
16	<i>G. unifolia</i> Ridl.	Leigat leleu, Silukuk onaja	-	Whole plant	Asthma	Wild
17	<i>G. variabilis</i> Ridl.	Sipu popoirag	-	Whole plant	Asthma	Wild
18	<i>G. multifolia</i> A.Takano & H.Okada	Silukkuk	-	Whole plant	Cough	Wild
19	<i>G. leucantha</i> Miq.	Sipu popoirag simabulau	-	Whole plant	Asthma	Wild
20	<i>Hedychium flavescens</i> Carey ex Roscoe	Simakaino silimun Tainao	Cream ginger lily	Leaf, Flower	Stomach ache, back pain, fever	Cultivated
21	<i>H. coronarium</i> J.Koenig	Tainao simabulan	White ginger lily	Flower, Stem	headache	Cultivated
22	<i>H. longicornutum</i> Griff. ex Baker	Kinande, siputainaok	Hornbill's ginger	Rhizome	diarrhoea, Stomach ache, itchiness	Wild
23	<i>Hornstedtia</i> cf. <i>deliana</i> Valetton	Kara-kara	-	Stem	Fever	Wild
24	<i>H. conica</i> Ridl.	Sikukuet	-	Stem	Childbirth cramps	Wild
25	<i>H. parviflora</i> Ridl.	Kamumulek, Roddot	-	Rhizome	Headache, Cough, poison crab allergy	Wild
26	<i>H. tomentosa</i> (Blume) Bakh.f.	Sailulua	-	Rhizome	Childbirth cramps, back pain	Wild
27	<i>Horstedtia</i> sp.	tatandak, sibeususi	-	Stem	Vomiting	Wild
28	<i>Kaempferia galanga</i> L.	Kopuk	Kencur	Rhizome	Stomach ache, fever, rheumatism	Cultivated
29	<i>Plagiostachys mucida</i> Holttum	sikak-sikak, pasisikak	-	Leaf	Fever, vomiting	Wild
30	<i>Zingiber officinale</i> Roscoe	Laigak	Ginger	Rhizome	Stomach ache, Childbirth cramps	Cultivated
31	<i>Z. zerumbet</i> (L.) Roscoe ex Sm.	Siguju'	Zerumbet ginger	Rhizome	Stomach ache	Cultivated
32	<i>Z. zerumbet</i> var. <i>littoralis</i> Valetton	Palakokoaik, Laigak saileu	Zerumbet ginger	Rhizome, Leaf	Fever, back pain	Cultivated

Plant part used

The most common plant parts used for medicines are rhizomes (32%), stems (24%), the whole plant (18%), flowers (13%) and leaves (13%) (Figure 2). The use of rhizomes for medicinal preparations is not surprising, since Zingiberaceae rhizomes are commonly used for various health needs in many other communities, for example in Banjar Baru, South Kalimantan (Kuntorini, 2005).

Fresh plants are harvested directly from the forest or garden around the house if they are to be used as medicine. The Sikerei rarely use herbs in their dry form. It is considered taboo to harvest medicinal plants if they are not needed.

Types of ailments

At least 21 ailments and other health issues were cited during the investigation period (Figure 3). Ailment types were categorised according to information gathered from traditional healers and

Sikerei. Ailment types that had similar symptoms were grouped together, even where local differences emerged, for example: dizziness and pain anywhere in the head was categorised as headache. The most common health issue treated by plants in the Zingiberaceae family is headache, followed by stomachache, health problems related to pregnancy, back pain, and fever. Each treatment uses at least five species from the Zingiberaceae family. Eight species of Zingiberaceae are used to treat headaches, commonly through drinking the boiled plants.

It was observed that medicinal plants are usually mixed with other plants or natural products and are rarely used in isolation. It was also found that some plant species are used as accessories for healing rituals. For example, the leaves of *Hedychium flavescens* G. Lodd. are used in medicinal preparations, but the flowers are an important part of Mentawai ceremonies and rituals and are often worn by Sikerei during a healing ceremony.

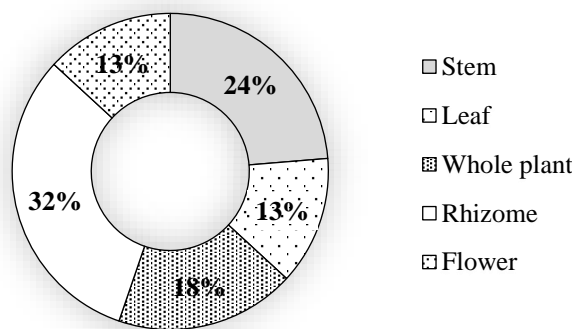


Figure 2. Plant parts used of medicinal Zingiberaceae species by the Mentawai people living in Siberut

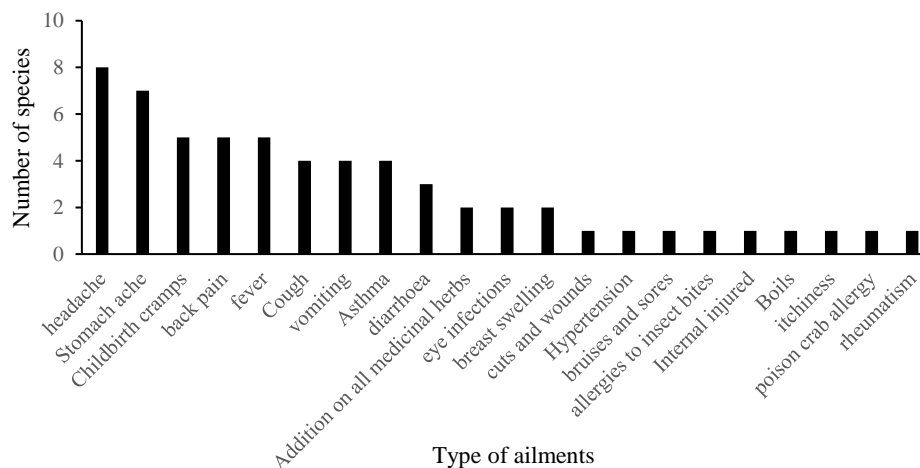


Figure 3. Number of Zingiberaceae species used for traditional medicine of Mentawai tribe in the Siberut Island.

CONCLUSION

For centuries, various groups in Indonesia have used plants from the Zingiberaceae family for treating a range of diseases and illnesses. The Mentawai people utilise at least 32 species in the Zingiberaceae to treat 21 diseases and other ailments prevalent in Siberut. The most common plant part used is the rhizome.

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